SIMPLE RULES

ARITHMETIC

FOR THE USE OF

JUNIOR CLASSES

IN

PUBLIC SCHOOLS.

BY

TORONTO:
THE COPP, CLARK COMPANY, LIMITED.

10 307

SIMPLE RULES

IN

ARITHMETIC

FOR USE IN THE

JUNIOR CLASSES

OF THE

PUBLIC SCHOOLS.

BY

R. T. MARTIN,

TORONTO.

THE COPP, CLARK COMPANY, LIMITED,

9 FRONT STREET WEST, TORONTO.

Entered according to the Act of the Parliament of Canada in the year one thousand eight hundred and eighty-eight, by THE COPP, CLARK COMPANY, LIMITED, in the Office of the Minister of Agriculture.

PREFACE.

THE object of this book is to furnish pupils with such tables, exercises, and examples in the simple Rules as will enable them to attain to the highest degree of accuracy and rapidity in the shortest time possible, and with the best mental results The study of the simple Rules should always be made an exercise of the mind and not a merely mechanical process. A great deal of what is termed rote learning in arithmetic has been owing to the improper construction of the arithmetical tables, and the want of variety in the orders in which it is possible to recite them. The tables in this book can be recited in so many orders that it is almost impossible for pupils to acquire any bad habits while learning them. They are not a haphazard jumbling of figures, but are written on a thoroughly scientific principle throughout. They contain the possible variations of the digits taking two at a time. They cannot be improved upon, and therefore as a system methodically considered they are absolutely perfect.

There are three important steps in the study of addition, and these should be practised in the order given.

1st. To be able to tell the sum of any two digits at sight.

2nd. To be able to carry any number in the mind and add to it any digit at sight.

3rd. To be able to add without the aid of the sight of the figures.

The horizontal columns in Table I should be recited as soon as the child can make figures representing objects less than twenty. This will give him confidence in his work, make him familiar with figures, and aid him in reciting rapidly.

Table II. should be studied and recited by the pupils. The table in subtraction should be recited about the same time.

When one horizontal column in Table III. can be recited rapidly, the pupil should commence the slate exercise on page twenty using the line of figures already studied.

The Multiplication Tables may be learned in all the orders given, or in as many as is found necessary. These should then be recited in the various orders on the next page.

The great amount of extra labor and drudgery experienced by persons who count on their fingers, tap on the slate, or use other mechanical means of calculating should be sufficient to induce teachers and others to adopt this method of teaching the simple Rules of Arithmetic. By it the pupils will invariably become quick and accurate in manipulating large columns of figures and acquire correct mental habits in the performance of their work.

R. T. MARTIN.

TABLE I.

1	3	5	7	9	2	4	6	8
9	7	5	3	1	8	6	4	2
—	—	—	—	—	—	—	—	—
1	3	5	2	4	6	7	8	9
6	4	2	5	3	1	9	8	7
—	—	—	—	—	—	—	—	—
1	2	3	5	7	9	4	6	8
2	1	9	7	5	3	8	6	4
—	—	—	—	—	—	—	—	—
1	3	5	4	2	7	9	8	6
5	3	1	2	4	8	6	7	9
—	—	—	—	—	—	—	—	—
1	3	5	7	2	4	6	8	9
8	6	4	2	7	5	3	1	9
—	—	—	—	—	—	—	—	—
1	3	2	4	5	7	9	6	8
4	2	3	1	9	7	5	8	6
—	—	—	—	—	—	—	—	—
1	2	3	5	7	9	4	6	8
3	2	1	8	6	4	9	7	5
—	—	—	—	—	—	—	—	—
1	3	5	7	9	2	4	6	8
1	8	6	4	2	9	7	5	3
—	—	—	—	—	—	—	—	—
1	3	5	7	2	4	6	9	8
7	5	3	1	6	4	2	8	9
—	—	—	—	—	—	—	—	—

(1). Recite the horizontal columns commencing at either end and naming each figure in a combination before giving the sum.

(2). When the other Addition Tables can be said rapidly, recite the vertical columns in this table.

TABLE II.

2	4	6	8	1	3	5	7	9
2	4	6	8	1	3	5	7	9
4	8	12	16	2	6	10	14	18
1	3	5	7	9	2	4	6	8
6	8	1	3	5	7	9	2	4
7	11	6	10	14	9	13	8	12
7	9	2	4	6	8	1	3	5
2	4	6	8	1	3	5	7	9
9	13	8	12	7	11	6	10	14
5	7	9	2	4	6	8	1	3
6	8	1	3	5	7	9	2	4
11	15	10	5	9	13	17	3	7
3	5	7	9	2	4	6	8	1
2	4	6	8	1	3	5	7	9
5	9	13	17	3	7	11	15	10
6	8	1	3	5	7	9	2	4
4	6	8	1	3	5	7	9	2
10	14	9	4	8	12	16	11	6
3	5	7	9	2	4	6	8	1
5	7	9	2	4	6	8	1	3
8	12	16	11	6	10	14	9	4
9	2	4	6	8	1	3	5	7
3	5	7	9	2	4	6	8	1
12	7	11	15	10	5	9	13	8
9	2	4	6	8	1	3	5	7
6	8	1	3	5	7	9	2	4
15	10	5	9	13	8	12	7	11

Study three columns horizontally; then the same three vertically, and so on with the rest of the table.

TABLE III.

1	8	6	4	2	9	7	5	3
1	1	1	1	1	1	1	1	1
—	—	—	—	—	—	—	—	—
3	1	8	6	4	2	9	7	5
3	3	3	3	3	3	3	3	3
—	—	—	—	—	—	—	—	—
5	3	1	8	6	4	2	9	7
5	5	5	5	5	5	5	5	5
—	—	—	—	—	—	—	—	—
7	5	3	1	8	6	4	2	9
7	7	7	7	7	7	7	7	7
—	—	—	—	—	—	—	—	—
9	7	5	3	1	8	6	4	2
9	9	9	9	9	9	9	9	9
—	—	—	—	—	—	—	—	—
2	9	7	5	3	1	8	6	4
2	2	2	2	2	2	2	2	2
—	—	—	—	—	—	—	—	—
4	2	9	7	5	3	1	8	6
4	4	4	4	4	4	4	4	4
—	—	—	—	—	—	—	—	—
6	4	2	9	7	5	3	1	8
6	6	6	6	6	6	6	6	6
—	—	—	—	—	—	—	—	—
8	6	4	2	9	7	5	3	1
8	8	8	8	8	8	8	8	8
—	—	—	—	—	—	—	—	—

(1). Recite both the vertical and horizontal columns till they can be said rapidly.

(2). Copy the whole table on the slate; then write the answers in a minute and a half.

ORAL EXERCISES.

1	1	1	1	1	1	1	1	1	1
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
3	3	3	3	3	3	3	3	3	3
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
5	5	5	5	5	5	5	5	5	5
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
7	7	7	7	7	7	7	7	7	7
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
9	9	9	9	9	9	9	9	9	9
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
2	2	2	2	2	2	2	2	2	2
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
4	4	4	4	4	4	4	4	4	4
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
6	6	6	6	6	6	6	6	6	6
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—
8	8	8	8	8	8	8	8	8	8
11	13	15	17	19	10	12	14	16	18
—	—	—	—	—	—	—	—	—	—

Do not name the top figure when reciting. The *second* horizontal column should be said thus: eleven fourteen, thirteen sixteen, fifteen eighteen, etc. Recite the vertical columns in a similar way.

ORAL EXERCISES.

1	3	5	7	9	0	2	4	6	8
21	23	25	27	29	20	22	24	26	28
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
38	31	33	35	37	39	30	32	34	36
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
46	48	41	43	45	47	49	40	42	44
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
54	56	58	51	53	55	57	59	50	52
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
62	64	66	68	61	63	65	67	69	60
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
70	72	74	76	78	71	73	75	77	79
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
89	80	82	84	86	88	81	83	85	87
—	—	—	—	—	—	—	—	—	—
1	3	5	7	9	0	2	4	6	8
97	99	90	92	94	96	98	91	93	95
—	—	—	—	—	—	—	—	—	—

Recite both the vertical and horizontal columns. Name the bottom figures first, then the sum: thus, twenty-one twenty two, twenty-three twenty-six, twenty-five thirty, etc.

Do not use more than one column at a time for practice till the whole table is thoroughly learned. It may be used as a slate exercise.

EXERCISE I.

(1)	(2)	(3)	(4)	(5)	(6)
32154	63251	43526	53452	61314	52723
89495	35947	89368	74683	76485	78942
33672	78265	58537	25236	73664	29236
(7)	(8)	(9)	(10)	(11)	(12)
43215	63556	44455	66225	33664	44336
83758	48759	53734	53886	47687	59837
48974	96397	86997	49392	28928	76528
(13)	(14)	(15)	(16)	(17)	(18)
43965	48378	56275	38264	52734	62453
86587	93765	48397	85728	67259	46378
44668	87868	79689	49596	86386	79544

EXERCISE II.

(1)	(2)	(3)	(4)	(5)	(6)
38275	45217	32425	26272	34445	46474
87675	78797	68584	83828	45596	89795
49786	59484	73687	49767	38474	65878
(7)	(8)	(9)	(10)	(11)	(12)
43526	37242	23265	65234	51251	42154
79384	68795	76543	87397	96894	83736
97986	89684	64837	93968	75969	74867
(13)	(14)	(15)	(16)	(17)	(18)
23826	42751	27264	36275	56342	57218
69389	78978	49689	93784	97295	75769
87986	93747	74968	38437	65878	49638

EXERCISE III.

(1)	(2)	(3)	(4)	(5)	(6)
43223	65243	53354	62715	33887	58342
57576	83759	62748	73949	84736	22849
75863	78276	87376	38917	46297	57788
(7)	(8)	(9)	(10)	(11)	(12)
27362	53277	36625	83725	62538	72947
86278	39284	63829	44666	38276	58877
79449	57765	77597	88791	89295	96293
(13)	(14)	(15)	(16)	(17)	(18)
43728	62757	32576	83729	36284	58374
69277	32792	97276	74454	83845	69589
83462	99876	88793	84999	99779	38955

EXERCISE IV.

(1)	(2)	(3)	(4)	(5)	(6)
36437	34656	35465	53465	63675	47263
81258	46372	81420	63540	56138	60721
73809	64938	58999	77665	93938	69798
98764	89583	79684	68797	48796	38927

(7)	(8)	(9)	(10)	(11)	(12)
37256	45317	52365	83725	63927	48639
84349	68583	46972	59376	85786	84477
39628	57952	87596	38977	76759	74329
73794	69837	37337	96293	47622	78762

EXERCISE V.

(1)	(2)	(3)	(4	(5	(6)
34343	42623	57256	78378	65216	56472
89898	87858	36858	86745	39674	97874
76335	87446	67657	84864	35647	42534
78586	68499	78926	79428	97874	58785

(7)	(8)	(9)	(10)	(11)	(12)
79869	48376	54762	83726	58378	67395
58546	37659	42638	78652	13817	50621
69093	17658	50406	38610	56738	76096
76835	95438	97383	78539	76849	89673

EXERCISE VI.

(1)	(2)	(3)	(4)	(5)	(6)
78683	78397	42657	59316	49684	37268
28798	49735	76497	38251	54916	38627
99665	89898	79585	47667	38778	95169
78787	63879	58486	56569	76566	39795

(7)	(8)	(9)	(10)	(11)	(12)
52346	45234	67284	83627	57766	63734
87397	59769	43876	58976	62463	38464
33388	27727	49949	66694	88876	67376
93976	95969	58498	87687	65965	96799

(13)	(14)	(15)	(16)	(17)	(18)
39758	37658	58379	63364		69472
86973	97593	95693	98877	58958	83796
95847	86754	72969	49389	36759	44887
69384	92938	48447	76287	99664	93295

EXERCISE VII.

(1)	(2)	(3)	(4)	(5)	(6)
43657	57634	38562	44667	55668	66774
87286	95978	74376	86965	93497	83969
98768	43796	48767	56897	46939	49544
39263	79295	92487	34327	36764	24567
97532	86439	24689	76486	97639	58386

(7)	(8)	(9)	(10)	(11)	(12)
43869	62977	58376	92764	83765	85389
97687	86764	43964	59769	42697	38592
44455	66688	77799	99988	77766	44466
78999	86999	55968	37495	83652	59627
86758	37654	37496	93867	56799	48386

EXERCISE VIII.

(1)	(2)	(3)	(4)	(5)	(6)
38725	95276	48355	52179	13879	16975
97648	49737	68757	79693	48348	74868
74964	84398	76867	49327	63877	62747
59359	68368	69796	58378	95764	83849
64724	32796	58437	67267	54638	76958
97297	63864	93764	48749	39278	48689

(7)	(8)	(9)	(10)	(11)	(12)
24277	35758	48376	87291	31727	14917
89169	58172	83728	96487	69392	86473
62267	93877	37654	24675	79354	83592
32647	74589	59448	73242	69234	67898
38347	57484	66779	49358	87956	48279
83659	86599	76943	89295	45678	98867

(13)	(14)	(15)	(16)	(17)	(18)
37689	21738	56837	56937	26193	37265
93768	49697	86385	85849	46939	72968
74948	63684	82794	68489	89274	36769
39756	58494	95676	66973	35745	95939
48939	76832	48659	97762	67757	89744
75493	64274	84397	62879	53929	46938

EXERCISE IX.

(1)	(2)	(3)	(4)	(5)	(6)
47362	38251	63824	46291	38275	34217
75736	57639	97295	38927	86759	59386
70479	25457	38958	30990	38233	37274
36947	67583	40317	41769	46397	48437
57675	93929	56995	57636	83621	67396
83959	54844	38386	27169	46959	21519

(7)	(8)	(9)	(10)	(11)	(12)
32827	54327	43825	37276	52179	83926
63975	48293	76229	53658	84562	37585
58355	62569	87497	94923	86723	67478
96977	28231	59256	30179	51291	83615
58597	65847	68749	55974	56954	55874
63975	64865	66835	67585	64845	76958

EXERCISE X.

(1)	(2)	(3)	(4)	(5)	(6)
38276	52543	62859	43216	21715	91318
75437	69389	58279	39674	59639	28677
38697	48657	97936	93767	56995	94241
63282	52726	36297	62754	48386	87697
39217	62968	93769	21736	83217	62134
48474	49349	46277	67372	82796	39276
58621	56379	37522	23723	83929	68929
85768	88658	46557	93997	62817	56443

(7)	(8)	(9)	(10)	(11)	(12)
32591	43729	65644	36841	75489	77564
59729	58967	72442	57695	27464	47386
84638	97695	49821	31075	52678	63754
29775	84869	32382	86729	36748	47386
83996	73762	74762	52453	53485	74395
86796	34437	24254	42354	44743	49678
38979	54867	49424	36848	75986	67996
95396	97279	44574	94683	79876	46389

EXERCISE XI.

(1)	(2)	(3)	(4)	(5)	(6)
48386	24748	33473	66788	57879	67964
94488	39296	96787	27385	78386	73636
37626	15931	93564	63349	96276	97623
84967	62867	68876	26737	78379	84737
58373	59317	67957	78898	53693	76286
49596	66776	78317	67698	62759	75262
58376	59389	87286	89738	95958	28434
65939	72675	38726	39364	62783	59835
79594	43762	73879	95768	56975	97677
86375	97529	96837	57746	83767	57868

(7)	(8)	(9)	(10)	(11)	(12)
53836	38936	38276	93272	36283	26798
25179	17659	59829	52684	83652	39267
58437	57469	28687	94361	53373	36829
63929	28638	38268	65479	48537	83978
50175	35946	56289	99375	67584	48279
83419	14628	76263	34438	46628	37575
65837	38989	38687	27639	73833	39544
27586	89797	57694	58627	97628	87629
62862	79687	72847	62362	66397	23647
83723	34642	66469	86769	48476	39295

(13)	(14)	(15)	(16)	(17)	(18)
39272	83294	72751	23562	27832	27234
52634	58483	83486	12345	34379	86785
67438	82267	94737	24680	35843	96685
58371	59684	58696	92632	92796	32729
62794	37635	35787	67976	67735	38672
34474	83744	38374	83729	384F4	26843
83363	34436	67284	59376	37262	87476
97639	93333	82339	84639	79296	59248
68586	43692	76592	59692	93279	32929
76297	86392	32627	27676	25565	93927

EXERCISE XII.

(1)	(2)	(3)	(4)	(5)	(6)
32927	57685	32927	34245	77266	52386
53849	87867	74747	93838	37298	96287
62633	88843	83879	59848	76244	87728
27219	77677	56299	93469	34249	63848
52196	38867	87987	87898	48962	68349
38276	95357	84583	76748	68874	79638
93972	78437	93867	37897	71655	77678
84355	98683	58778	63826	37696	58837
62686	85699	69279	54644	83798	37781

(7)	(8)	(9)	(10)	(11)	(12)
34846	53929	42465	75676	84197	47496
39297	86292	58387	57516	54977	66738
58386	65844	62985	34467	53489	33898
27762	86757	89765	84816	48694	53828
86659	38789	83986	48623	76988	94639
48382	78988	27877	38297	84691	39624
63962	63928	87679	83743	39228	88567
82528	89397	23738	84944	38376	76936
68386	76284	98677	64385	97724	65938

(13)	(14)	(15)	(16)	(17)	(18)
23272	76639	72767	32586	48286	27937
63965	95797	98976	86677	86493	83458
83772	34727	54973	96939	38979	75875
28769	35846	79338	58472	97877	29563
52795	58978	76876	62133	79336	85729
87244	38376	36636	74796	85878	36682
34749	96675	42126	37453	78584	97976
63837	96437	87687	68787	85494	75298
25575	73378	36976	62875	74762	56426
92976	77497	58696	46634	28674	97874
39297	69353	29629	56289	37936	38688
87384	64469	37574	95997	96786	46248

EXERCISE XIII.

Add—

(1) 621638+50274+2867+592+384+9765+79+567+37+96+107+40.

(2) 382007+580672+8279+386+9168+8314+69+9127+86+27+12.

(3) 12358+912700+62876+3727+926+5372+74+380+920+7006.

(4) 6727876+392000+501000+6200701+6719+93+503+27201+50.

(5) 8396279+9269584+3896787+250059+5272+62+37276+76.

(6) 912000+409006+300282+916923+77382+976+8476+1234567+84.

(7) 321026+5762+84+290+170+501+53027+683+9167+10097+1005.

(8) 270276+30728+6789+82180+769+309+720+59283+71+69+82+2.

(9) 372900+1292506+310297+828693+8437+866+867+27962+38+901+76.

(10) 912196+898767+442246+324726+9530+709+3727+8261+91276.

EXERCISE XIV.

Add—

(1) 929691+37268+720017+39692+9767+84+42.

(2) 272867+392768+628176+92728+310762+9279.

(3) 9109165+867286+2760+502060+100789+87638.

(4) 2196927+382678+69729+846268+3216721+76.

(5) 729627+3280127+62897+372691+12327+8678.

(6) 2161514+3000061+928976+72969+998877+60027.

(7) 3927689+52386+27+389+4286+51612+96+873.

(8) 926916+27+86+56+500+30076+221121+92100.

(9) 5161308+6272167+1000768+928000+30006+800.

(10) 21006+816210+30020+506600+200390+9276+72.

EXERCISE XV.

Add—

(1) Twenty-four, seventy-six, eighty-nine, thirty-two, forty-five, sixty-three, thirty-nine, eighty-eight, seventy-two, fifty-seven.

(2) Ninety-seven, seventy-nine, thirty-four, eighty-six, fifty-two, thirty-one, nineteen, twenty-nine, sixty-four, seventy-three.

(3) One hundred and twenty-five, two hundred and thirty, six hundred and forty, seven hundred and eighty, four hundred and seventy.

(4) Nine hundred and forty-nine, three hundred and sixty-four, eight hundred and ninety, four hundred and twenty-nine, five hundred and thirty, seven hundred and eight.

EXERCISE XVI.

Add—

(1) 4 thousands 278 units, 8 thousands 976 units, 7 thousands 384 units, 12 thousands 692 units, 14 thousands 900 units.

(2) 84 thousands 273 units, 96 thousands 508 units, 49 thousands 970 units, 56 thousands 342 units, 78 thousands 497 units.

(3) 786 thousands 384 units, 692 thousands 462 units, 436 thousands 32 units, 300 thousands 75 units, 80 thousands 43 units, 69 thousands 65 units, 90 thousands 10 units.

(4) 650 thousands 27 units, 79 thousands 39 units, 700 thousands 500 units, 890 thousands 36 units, 401 thousands 808 units, 900 thousands 406 units, 50 thousands 90 units, 75 thousands 386 units.

EXERCISE XVII.

Add—

(1) 2 millions 276 thousands 504 units, 12 millions 972 thousands 490 units, 76 millions 298 thousands 409 units, 450 millions 308 thousands 110 units, 59 millions 38 thousands 202 units, 54 millions 7 thousand 60 units.

(2) 900 millions 700 thousands 19 units, 80 millions 47 thousands 101 units, 810 millions 10 thousands 56 units, 790 millions 40 thousands 60 units, 32 millions 50 thousands.

(3) 296 millions 784 thousands 976 units, 709 millions 59 thousands 35 units, 18 thousands 7 units, 82 thousands 709 units, 70 thousands 95 units, 60 thousands 482 units.

(4) 30 millions 40 thousands 536 units, 106 millions 84 thousands 90 units, 51 millions 8 thousands 9 units, 100 millions 10 thousands 10 units, 370 millions, 90 thousands 80 units.

(5) 309 millions 71 thousands 84 units, 672 millions 301 thousands 204 units, 45 millions 60 thousands 90 units, 56 millions 73 thousands 80 units, 392 thousands 196 units.

(6) 17 millions 2 thousands 11 units, 119 millions 13 thousands 80 units, 58 millions 9 thousands 18 units, 57 million 17 thousands 65 units, 997 thousands 89 units, 879 thousands 659 units.

(7) 999 millions 888 thousands 777 units, 707 millions 70 thousands 59 units, 82 millions 75 units, 34 millions 27 units.

(8) 50 millions 698 units, 80 millions 45 units, 68 millions 10 units, 39 millions 12 units, 65 millions 96 thousands, 40 millions 89 thousands, 92 millions 769 thousands.

EXERCISE XVIII.

Write in words—

10	17	26	42	12	13	88	56
15	21	35	34	72	51	29	63
11	30	27	22	45	69	78	89
20	45	38	20	67	70	81	57
25	29	16	33	50	84	90	43
31	19	13	18	49	48	78	52

EXERCISE XIX.

Write in words—

73	100	192	209	467	900	899
47	107	165	275	405	902	998
68	119	138	384	399	999	760
54	120	150	350	601	800	609
85	101	199	490	506	840	710
97	114	200	555	243	898	812

EXERCISE XX.

Write in Roman Numerals—

4	11	21	30	73	127	727	1120
7	13	32	37	89	275	482	1050
9	15	29	34	64	340	999	1070
6	17	24	40	94	462	647	1800
5	14	28	50	97	504	879	1887
10	19	22	65	88	519	445	1439

EXERCISE XXI.

Write in figures—

(1) XV, IV, XIII, XIV, XXIX, LXVI, XXXIV.

(2) XLVIII, LXXIV, CX, CIX, XC, CL, LXXVI.

(3) CXXIX, CXLIV, CCXC, CVL, DCC, CXXIV.

(4) DCCXIX, MDCLXIX, CM, MDCCCIV, MCII.

(5) CXC, MMCDXL, MCLXXX, MDCCCIV, MXL.

(6) MCCXXVIII, MDCCCLXXXVII, CMXV, MCC.

EXERCISE XXII.

Find the sum of—

(1) 422, 436, 329, 506, 837, 727, 35.
(2) 362, 845, 127, 371, 400, 501, 72.
(3) 500, 600, 808, 909, 960, 700, 89.
(4) 897, 387, 76, 890, 45, 36, 47, 68.
(5) 3586, 3729, 4063, 205, 23, 83, 47.
(6) 956, 387, 92, 47, 101, 56, 35, 89.
(7) 49, 36, 27, 59, 191, 106, 38, 848.
(8) 386, 29, 30, 400, 56, 978, 765, 96.
(9) 892, 375, 1006, 27, 39, 86, 75, 67.
(10) 106, 1002, 3151, 26, 30, 84, 95, 9.

EXERCISE XXIII.

Add together—

(1) 726, 382, 96, 580, 392, 106, 84.
(2) 270, 308, 54, 907, 379, 502, 26.
(3) 867, 390, 72, 410, 219, 320, 56.
(4) 586, 920, 28, 340, 427, 500, 12.
(5) 490, 692, 32, 112, 111, 210, 14.
(6) 900, 202, 31, 710, 404, 818, 91.
(7) 707, 199, 201, 30, 57, 86, 1063.
(8) 146, 237, 38, 29, 57, 80, 1251.
(9) 106, 700, 85, 67, 900, 100, 300.
(10) 76, 36, 81, 79, 22, 46, 64, 85, 21.

EXERCISE XXIV.

Find the sum of—

(1) 90000, 76839, 20163, 489, 27.
(2) 82169, 38275, 46296, 500, 30.
(3) 38286, 59376, 28271, 201, 45.
(4) 10310, 21006, 321027, 59, 32.
(5) 3625, 4286, 8927, 5391, 67, 84.
(6) 10999, 69792, 39362, 847, 29.
(7) 37262, 84104, 59195, 620, 42.
(8) 91210, 36272, 296, 386, 279, 25.
(9) 12812, 63721, 5873, 482, 6964.
(10) 50063, 40791, 84962, 786, 91.

EXERCISE XXV.

Write in words—

(1) 27, 84, 907, 113, 706, 508, 210, 1000, 4005, 6007, 8009, 7025, 4100, 3999.

(2) 312, 890, 546, 793, 10009, 11900, 6470, 6008, 30400, 45309.

(3) 25025, 75000, 70000, 19001, 27200, 5000, 35500, 62799, 50500.

(4) 84965, 107395, 309400, 319919, 800000, 910970, 296005, 100000.

(5) 899997, 608808, 510010, 320200 400201, 600500, 490090, 810070.

EXERCISE XXVI.

Write in words—

(1) \$8.40, \$3.90, \$10., \$5.75, \$4.80, \$35.95, \$62.33, \$106.06, \$70.12, \$900.59.

(2) \$763.35, \$492.25, \$101.01, \$109.10, \$687.72, \$500., \$809.09, \$1000.10, \$7000.20.

(3) \$1009.09, \$12999.40, \$16385.50. \$107000., \$60010.01 \$500000, \$490045.45, \$88080.80, \$499990.

(4) \$221021.41, \$900000.90, \$40100.60, \$100000., \$505505.05, \$369900.52.

(5) \$119109.09, \$101100.10, \$400300.30, \$309909.80, \$999999.99, \$117017.17, \$600060.

EXERCISE XXVII.

Find the sum of—

(1) \$467.40, \$392.80, \$654.40, \$809.95, \$207.75, \$692.45, \$890.09, \$470.37.

(2) \$597.95, \$692.95, \$40.40, \$37.32, \$109.09, \$500., \$167.20, \$112.12, \$495.92.

(3) \$9000.25, \$4444.40, \$3909.27, \$406.60, \$480.08 \$6060.50, \$8090.93.

(4) \$9768.97, \$90467.40, \$462876., \$37201.10, \$5050.50, \$119100.90.

(5) \$100000 10, \$117700.70, \$192900.33, \$609900.40 \$800000., \$309900.91.

EXERCISE XXVIII.

(1) John did 12 examples on Monday, 14 on Tuesday, 17 on Wednesday, 19 on Thursday, and 23 on Friday, how many did he do during the five days?

(2) July has 31 days, August 31, September 30, October 31 November 30, December 31: how many days in these six months?

(3) There are 17 children in our class, 21 in another, 29 in a third, and 35 in a fourth: how many in all?

(4) Out of a bag of marbles, Willie took 14, John 23, James 19, and Robert 35; there were 2 dozen left: how many in the bag at first?

(5) In a library there are 48 books on one shelf, 54 on another, 65 on a third, 72 on a fourth, and 83 on a fifth: how many in all?

(6) A boy spent 24 cents for grapes, 32 cents for peaches, 45 cents for oranges and 20 cents for candy: how much did he spend in all?

(7) A man rode 42 miles on Monday, 46 miles on Tuesday, 53 miles on Wednesday, 64 miles on Thursday and 39 miles on Friday: how many miles did he ride in the five days?

(8) The addends are 786, 392, 1096, 5072, 3209, 54200, 6989, and 504: what is their sum.

(9) A farmer received 456 dollars for wheat, 380 dollars for barley and 297 dollars for oats: how many dollars did he receive in all?

(10) Add all the numbers between 267 and 278 including both these numbers.

EXERCISE XXIX.

(1) James has 275 dollars, John has 347 dollars, and Willie has as much as James and John together : how much money have all three ?

(2) A man bought two horses at 175 dollars each, and sold both at a gain of 50 dollars : how much did he get for the span ?

(3) Willie's grandfather was 69 years old 12 years ago : how old is he now ?

(4) A drover spent 680 dollars in buying cattle and had 320 dollars left : how much money had he at first ?

(5) There are four numbers ; the first is 397, the second 479, the third as much as the first and second together, and the fourth as much as the other three : find the sum of the numbers ?

(6) The hind quarters of an ox weighed 165 lbs. each ; the fore quarters weighed 112 lbs. each ; the hide weighed 55 lbs., and the tallow 64 lbs. : what was the whole weight of the ox ?

(7) Two men start from the same place and travel in opposite directions ; one at the rate of 4 miles an hour, and the other 5 miles an hour : how far will they be apart at the end of 2 hours ?

(8) A gentleman gave one boy \$3.72 and two others \$2.45 each : how much did he give in all ?

SLATE EXERCISES.

1 7	8 7	3 7	9 7	4 7	7 7	5 7	2 7	6 7
8	15	10	16	11	14	12	9	13
2 7	9 7	4 7	1 7	5 7	8 7	6 7	3 7	7 7
9	16	11	8	12	15	13	10	14
3 7	1 7	5 7	2 7	6 7	9 7	7 7	4 7	8 7
4 7	2 7	6 7	3 7	7 7	1 7	8 7	5 7	9 7

EXPLANATION.

Rule the slate so as to form squares of about half an inch in size.

Write the digits in a mixed order in the top row of squares, and a line of 7's beneath them : then add these as shown above.

Make a second example by adding one to each figure in the first row of the digits (except the figure 9 which is followed in each succeeding example by 1) and placing a line of 7's beneath them as in the first example.

A third example is made by adding one to each figure in the second row of the digits, and placing a line of 7's beneath them as before.

Continue in this way till nine examples have been formed and added up.

In a similar way use a line of 4's, a line of 8's, a line of 5's, etc., till any line of figures can be added rapidly to a row of the digits ; then use these lines of figures alternately with each row of the digits ; and lastly use a different line of figures with each of the nine rows of digits.

By changing the order of the digits in the first row of squares an almost unlimited number of examples may thus be formed.

2	6	10	14	18	4	8	12	16
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
9	4	8	12	16	11	6	10	14
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
7	11	6	10	14	9	13	8	12
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
5	9	13	8	12	7	11	15	10
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
3	7	11	15	10	5	9	13	17
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
10	5	9	13	17	3	7	11	15
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
8	12	7	11	15	10	5	9	13
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
6	10	14	9	13	8	12	7	11
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—
4	8	12	16	11	6	10	14	9
1	3	5	7	9	2	4	6	8
—	—	—	—	—	—	—	—	—

Recite both vertical and horizontal columns as in addition, naming the lower figure first, the omitted figure next, and the the sum last, thus, one and one, two ; three and three, six ; five and five, ten, etc.

Oral practices on this page may be commenced as soon as the Addition Tables can be recited rapidly.

EXERCISE I.

(1)	(2)	(3)	(4)	(5)	(6)
59486	37258	46875	93586	47289	59387
25234	21243	14265	43214	25189	59302
(7)	(8)	(9)	(10)	(11)	(12)
86397	59386	46287	74938	63472	59746
23391	59129	14512	23942	21511	24172
(13)	(14)	(15)	(16)	(17)	(18)
38275	91736	48392	44776	58573	86793
21837	21994	21886	32771	19159	37299
(19)	(20)	(21)	(22)	(23)	(24)
76274	63829	45748	91397	86503	48091
27179	22996	31298	41716	22668	31279

EXERCISE II.

(1)	(2)	(3)	(4)	(5)	(6)
48103	53716	20271	30127	41052	62107
41391	41592	12392	10172	31091	26289
(7)	(8)	(9)	(10)	(11)	(12)
79107	39262	59728	36910	47296	38269
17291	12926	12597	13629	14159	12927
(13)	(14)	(15)	(16)	(17)	(18)
95938	72017	60202	72038	91071	48629
59196	29107	32827	41506	27152	40929
(19)	(20)	(21)	(22)	(23)	(24)
59127	69108	32710	56271	38107	42000
41929	69102	19296	21497	13091	20738

EXERCISE III.

(1)	(2)	(3)	(4)	(5)	(6)
91376	42807	58200	63917	42826	63210
29152	31992	27684	13192	21728	32199

(7)	(8)	(9)	(10)	(11)	(12)
92507	38629	42910	86284	52707	39106
41219	13916	21799	61299	13291	21912

(13)	(14)	(15)	(16)	(17)	(18)
58372	96278	41217	51321	61217	14591
21917	21592	13988	27766	28855	7211

(19)	(20)	(21)	(22)	(23)	(24)
59127	49260	30000	29107	62021	63215
40061	20071	9997	2991	3827	15191

EXERCISE IV.

(1)	(2)	(3)	(4)	(5)	(6)
83739	76304	37000	47002	59306	49287
23704	76091	21977	21556	31917	21729

(7)	(8)	(9)	(10)	(11)	(12)
72506	73929	52002	72077	60272	63091
27916	27158	32005	37076	31297	32144

(13)	(14)	(15)	(16)	(17)	(18)
48372	56238	47107	57261	49362	63824
12714	56079	27196	23284	21728	27919

(19)	(20)	(21)	(22)	(23)	(24)
49621	56287	39217	58271	40060	50090
21917	32724	24433	27759	22334	23476

EXERCISE V.

(1)	(2)	(3)	(4)	(5)
7380272	8301914	6287049	5862084	6300278
4129159	4191728	2319772	4169272	4121815

(6)	(7)	(8)	(9)	(10)
5982714	6410037	4910206	6310274	8201010
3291929	1710271	2151071	3292710	3207100

(11)	(12)	(13)	(14)	(15)
5862958	6287592	6581729	4273295	6272894
2171629	3291562	2384162	2391272	2628157

(16)	(17)	(18)	(19)	(20)
5910291	6281002	5102106	8017025	9013927
2171426	2917223	3238336	2029988	7172443

EXERCISE VI.

(1)	(2)	(3)	(4)	(5)
8310275	6271583	6272864	5291276	3827262
1006609	2030091	5190069	4190209	2003917

(6)	(7)	(8)	(9)	(10)
1000000	8072106	1009006	8370000	6362423
999999	2912761	211211	1591282	2914977

(11)	(12)	(13)	(14)	(15)
8300628	4938625	7289634	6240073	8416271
2710912	2191791	5128162	2191724	4131728

(16)	(17)	(18)	(19)	(20)
207053	8261152	4120132	5701262	7128156
129135	2128614	2103914	2126382	1412819

EXERCISE VII.

Find the difference between:—

(1) 98639472 and 747916
(2) 42916387 and 638179
(3) 84291769 and 591261
(4) 99684997 and 912938
(5) 65377427 and 829176
(6) 99762943 and 493268
(7) 82019065 and 729196
(8) 58217962 and 831097
(9) 73928446 and 829106
(10) 66277884 and 874992
(11) 84629348 and 791207
(12) 73829169 and 291634
(13) 91284367 and 738109
(14) 82776288 and 921708
(15) 40097684 and 810929
(16) 93914726 and 982083
(17) 45789367 and 489107
(18) 62694372 and 621918
(19) 70510610 and 817998
(20) 92060031 and 498989
(21) 80206042 and 879867
(22) 87210963 and 928727

EXERCISE VIII.

Find the value of—

(1) 4216382910 – 3821627
(2) 1291329104 – 2170386
(3) 4103827628 – 5290638
(4) 5210628379 – 4270962
(5) 8129634258 – 1591806
(6) 2191063847 – 3219168
(7) 5219062802 – 1517281
(8) 4291632091 – 7424361
(9) 1324192162 – 3131235
(10) 8136052217 – 1203071
(11) 5765243738 – 6547853
(12) 4372681054 – 6218367
(13) 5912931462 – 8900629
(14) 1210620003 – 6173847
(15) 4290681929 – 1817099
(16) 4963946322 – 4321098
(17) 6327649368 – 2436248
(18) 3864389712 – 4193624
(19) 3522936483 – 9272467
(20) 1309270463 – 8217146
(21) 4129381464 – 5210698
(22) 8218274431 – 9558294

EXERCISE IX.

Find the value of:—

(1) 32182+8379 – 6284
(2) 97862+8976 – 3928
(3) 46193+6219 – 9166
(4) 87279+8557 – 6638
(5) 79394+9296 – 8447
(6) 58396+8424 – 7487
(7) 46284+3747 – 8998
(8) 70583+6218 – 9229
(9) 38279+5877 – 6886
(10) 49387+6215 – 4392
(11) 82625+8492 – 7158
(12) 81327 – 5936+2714
(13) 37194 – 8219+6389
(14) 89726 – 4924 – 3276
(15) 93972 – 5962 – 8954
(16) 67347 – 8392+4841
(17) 74462+1721 – 3107
(18) 53588 – 6217 – 8109
(19) 93918+8177 – 6204
(20) 48473 – 3814+6888
(21) 52515+1621 – 3824
(22) 63791 – 4208 – 8006

EXERCISE X.

Find the value of :—

(1) 6834+2795 – 3628+6279 – 5916+3810 – 596 – 82735 – 302+65 – 763.

(2) 97396+2075 – 76304 – 6217+3862 – 1912+586 – 7381+ 62197 – 1091.

(3) 84716+2793 – 5972+68175 – 3824+72176 – 213716+ 31027 – 12345.

(4) 79218+ 6397 – 5816 – 27+3872 – 470 – 389 – 62+81765 – 32 – 76+21.

(5) 86279+38174 – 5010 – 6271+3897 – 4701 – 362 – 2107+ 49147 – 3102+56.

(6) 78382+37291 – 1070 – 6213+ 5878+392 – 796 – 41783+ 62 – 306 – 27 – 101.

(7) 81079+3762 – 42+67 – 38 – 108 – 627+8297 – 606274 – 302+92+190 – 6.

(8) 73009 +2684 – 8009 – 3210 – 7691+8997+623+8729+ 627 – 331 – 56.

(9) 92603+6817 – 376—489+3496 – 4209+63796 – 381 – 726—204.

EXERCISE XI.

Find the value of :—

(1) 8309679+87067 – 301054+763859 – 728 – 31046 – 4967 – 6937.

(2) 7282694+39076 – 72967 – 31279+56954 – 37294 – 763 – 39294+67 – 98.

(3) 97437+16208 – 36215+62719 – 4216 – 3278 – 4762+37+ 670+308+1010.

(4) 827867+38769 – 41628 – 3216+5637 – 8217 – 3102+14+ 563+76+900 – 46.

(5) 68394 – 20069 – 31027 – 41029+678+396 – 5074 – 3628+ 3691.

(6) 81427+39208+6217 – 4192 – 6978 – 4217 – 327+68981+ 27+94.

(7) 581+69879+706 – 3217 – 3897 – 276+589 – 3214 – 39 – 3609+58+96.

(8) 9217+92794 – 39486 – 5862 + 389+678+792 – 384 – 82 – 769+345.

EXERCISE XII.

(1) From 7280396895 take 262809749.
(2) Take 3817542716 from 9278154867.
(3) Find the sum of 876394, 96297, 386 and 7968.
(4) Find the difference between 837296 and 9427698.
(5) Subtract 7263849 from 382769+82194769.
(6) How much greater is 8958674 than 976284?
(7) Add 76289 to 65839764 – 2796107.
(8) What must be added to 3104 to make 4000?
(9) Subtract 78267 + 38974 from 190000 – 1400.
(10) What must be taken from 73928 to leave 7098?
(11) Find the value of 778 + 96 + 84 – 87 – 96 + 109 + 39.
(12) From 789 + 638 + 905 take 807 + 629 + 564.
(13) How much is 89276 + 69784 greater than 78629?
(14) Add 7869 to the difference between 6494 and 86.
(15) From the sum of 789, 386, 478 and 97 take 999.
(16) Find the value of 772 + 86 + 97 – 84 – 36 + 87 – 82.

EXERCISE XIII.

(1) Take 28372945 from 927286795.
(2) From 921706934 take 48397298.
(3) Subtract 841093767 from 9821900603.
(4) How much less is 99999 than 100000?
(5) By how much does 2683715 exceed 417092?
(6) From the sum of 79638 and 7954 take 9309.
(7) From the difference between 1000 and 79 take 87.
(8) Find the value of 739 + 879 + 648 – 79 – 39 – 9.
(9) Subtract 79293 from the sum of 97276 and 87.
(10) How much must I take from 9297 to leave 709?
(11) Add the difference of 796 and 9286 to 723.
(12) Add the sum of 948 and 467 to their difference.
(13) Find the value of 97 + 69 + 38 – 46 – 56 + 85 – 27.
(14) What must be added to 79384 to make 893647?
(15) What must be taken from 389268 to leave 80914?

EXERCISE XIV.

(1) From nine hundred and forty-seven, take four hundred and ninety-two.

(2) Take five hundred and eighty-three, from eight hundred and forty-seven.

(3) Find the difference between seven hundred and fifty-six, and three hundred and forty-five.

(4) How much is eight hundred, and sixty-four more than two hundred and forty-nine?

(5) From two thousand seven hundred and eighty-two, take nine hundred and sixty-three.

(6) Take twenty thousand and sixty-four from seventy-nine thousand seven hundred and eight.

(7) From 217 thousands 409 units take 120 thousands 690 units.

(8) From 2 millions 17 thousands 309 units take 987 thousands 608 units.

(9) Find the difference between 27 millions 82 thousands 4 units, and 9 millions 97 thousands 45 units.

(10) How much is 36 millions 79 thousands greater than 18 millions 700 thousands 56 units.

(11) Subtract 72 millions 48 thousands 34 units from 98 millions 87 thousands 600 units.

(12) What must be taken from 896 thousands 476 units to leave 78 thousands 47 units?

(13) How much does 19 millions 276 thousands 409 units exceed 4 millions 49 thousands 888 units?

(14) Find the difference between 786 thousands 387 units, and 99 thousands 79 units.

EXERCISE XV.

(1) James had 75 cents ; he spent 45 cents : how many had he left ?

(2) A man bought a house for $1970, and sold it for $2040 : how much did he gain ?

(3) A man sold his farm for $10050 ; it cost him $8075 : how much did he gain?

(4) I bought a house and lot for $3728 ; the lot cost $1200 : what did the house cost ?

(5) The sum of two numbers is 1191609 ; one of the numbers is 749884 : what is the other ?

(6) By selling my house for $3976 I lost $290 : what would I have gained had I sold it for $5000 ?

(7) A farmer owes $1565 ; if he had $300 more he could pay the debt and have $50 left : how much money has he ?

(8) From one hundred and thirty-five thousand six-hundred and forty take 90408.

(9) Find the value of $89768 + 9587 + 384 - 670927$.

(10) How much is the difference between 782906 and 1000000 greater than the sum of 3009 and 999 ?

(11) From the largest number that can be expressed by 8, 2, 9, 3, 7, 4, 6, 5 take 37694.

(12) The minuend is 8729648 the subrahend is 429037 ; what is the difference ?

(13) A man had $1200 ; he paid $120 for a horse, $95 for a buggy, and $35 for a set of harness : how much had he left.

twice	twice	twice	3 times	3 times	3 times
1.. 2	2.. 4	3.. 6	4..12	5..15	6..18
3.. 6	4.. 8	5..10	6..18	7..21	8..24
8..16	9..18	1.. 2	2.. 6	3.. 9	4..12
4.. 8	5..10	6..12	7..21	8..24	9..27
9..18	1.. 2	2.. 4	3.. 9	4..12	5..15
6...12	7..14	8..16	9..27	1.. 3	2.. 6
2.. 4	3.. 6	4 . 8	5..15	6..18	7..21
5..10	6..12	7 .14	8..24	9..27	1.. 3
7..14	8..16	9..18	1.. 3	2.. 6	3.. 9

4 times	4 times	4 times	5 times	5 times	5 times
1.. 4	2.. 8	3..12	4 .20	5..25	6..30
5..20	6..24	7..28	8 ,40	9..45	1.. 5
8..32	9..36	1.. 4	2..10	3..15	4..20
2.. 8	3..12	4..16	5..25	6. 30	7 .35
9. 36	1.. 4	2.. 8	3..15	4..20	5..25
4 .16	5..20	6..24	7..35	8..40	9..45
6..24	7..28	8..32	9..45	1.. 5	2..10
3..12	4 .16	5..20	6 30	7..35	8..40
7..28	8..32	9..36	1. 5	2..10	3 .15

6 times	6 times	6 times	7 times	7 times	7 times
1.. 6	2..12	3. 18	4..28	5..35	6..42
4..24	5..30	6..36	7..49	8..56	9 63
9..54	1 . 6	2..12	3..21	4..28	5 35
5..30	6..36	7..42	8. 56	9..63	1.. 7
8..48	9 54	1.. 6	2..14	3..21	4..28
2..12	3..18	4..24	5..35	6..42	7..49
6..36	7..42	8..48	9. 63	1.. 7	2..14
3..18	4..24	5..30	6..42	7..49	8..56
7..42	8..48	9..54	1.. 7	2..14	3 21

8 times	8 times	8 times	9 times	9 times	9 times
1.. 8	2..16	3..24	4 36	5..45	6..54
6..48	7..56	8..64	9..81	1.. 9	2. 18
3. 24	4..32	5..40	6..54	7 .63	8..72
8 .64	9..72	1.. 8	2..18	3. 27	4..36
4..32	5..40	6..48	7..63	8..72	9..81
9..72	1.. 8	2..16	3..27	4..36	5..45
5..40	6..48	7 .56	8..72	9..81	1.. 9
2 16	3..24	4 32	5..45	6..54	7 .63
7 56	8..64	9..72	1.. 9	2..18	3..27

ORAL EXERCISES.

Recite Like the Multiplication Tables.

twice	twice	twice	3 times	3 times	3 times
1..?	?.. 4	?.. 6	4..?	?..15	?..18
6 .?	?..14	?..16	9 .?	?.. 3	?.. 6
3 .?	?.. 8	?..10	6..?	?..21	?..24
8..?	?..18	?.. 2	2..?	?.. 9	?..12
4..?	?..10	?..12	7. ?	?..24	?..27
9..?	?.. 2	?. 4	3..?	?..12	?..15
5..?	?..12	?..14	8..?	?..27	?... 3
2..?	?.. 6	?. 8	5..?	?..18	?..21
7..?	?..16	?..18	1..?	?.. 6	?.. 9

4 times	4 times	4 times	5 times	5 times	5 times
1..?	?.. 8	? .12	4..?	?..25	?..30
4 ?	?..20	?..24	7 .?	? .40	?..45
9 ?	?.. 4	?.. 8	3..?	?..20	?..25
5..?	?..24	?..28	8..?	?..45	?.. 5
8..?	?..36	?.. 4	2 .?	?..15	?..20
2 .?	?..12	?. 16	5..?	?..30	?..35
6..?	?..28	?..32	9..?	?.. 5	?..10
3..?	?..16	?..20	6 .?	? .35	?..40
7..?	?..32	?..36	1. ?	? .10	?..15

6 times	6 times	6 times	7 times	7 times	7 times
1..?	?...12	?..18	4 .?	?..35	?..42
5...?	?..36	?..42	8..?	?..63	?.. 7
8..?	? 54	?.. 6	2..?	? .21	? .28
2..?	?..18	?..24	5..?	?..42	?..49
9..?	?. 6	?..12	3..?	?..28	?..35
4..?	?..30	?..36	7..?	?..56	?..63
6..?	?..42	?..48	9..?	?.. 7	?..14
3..?	?..24	?..30	6..?	?..49	?..56
7..?	?..48	?. 54	1..?	?..14	?..21

8 times	8 times	8 times	9 times	9 times	9 times
1..?	?..16	?..24	4..?	?..45	?..54
3..?	?..32	?..40	6..?	?..63	?..72
8..?	?..72	?.. 8	2..?	?. 27	?..36
4..?	?..40	?..48	7. ?	?..72	?..81
9..?	?.. 8	?..16	3..?	?..36	?..45
6..?	?. 56	?..64	9..?	?.. 9	?..18
2..?	?..24	?..32	5..?	?..54	?..63
5 .?	?..48	?..56	8..?	?..81	?.. 9
7..?	? :64	? 72	1..?	? .18	?..27

Oral and Slate Exercises.

1	3	5	7	9	0	2	4	6	8
5	7	9	0	2	4	6	8	1	3
3	5	7	9	0	2	4	6	8	1
9	0	2	4	6	8	1	3	5	7
4	6	8	1	3	5	7	9	0	2
7	9	0	2	4	6	8	1	3	5
0	2	4	6	8	1	3	5	7	9
2	4	6	8	1	3	5	7	9	0
8	1	3	5	7	9	0	2	4	6
6	8	1	3	5	7	9	0	2	4

Oral Exercise.

Carry any number less than a hundred *in the mind* and add it to each figure in a vertical or horizontal column: thus, carry ten in the mind, add to it each figure in the first vertical column and the recitation will run as follows:

Ten, one, eleven; ten, three, thirteen; ten, five, fifteen; ten, seven, seventeen; ten, nine, nineteen; etc.

Carry any single digit in the mind and multiply it by each figure in a column: thus, carry four in the mind and the recitation will run as follows:—

Four ones, four; four fives, twenty; four threes, twelve; four nines, thirty-six, etc.

If a pupil has been thoroughly drilled on the preceding tables a little practice should enable him to carry any single digit in the mind and add it to, or multiply it by, each figure in the whole table in about one minute.

Slate Exercise.

Place the columns of figures on the slate an inch or more apart with the sign of equality after each figure. Draw a line to the left of each vertical column. Carry any number in the mind and add it to each figure in the whole Table placing the sum after the sign of equality.

EXERCISE I.

Multiply each example successively by 2 ten times.

(1) 325186	(7) 583729	(13) 582736	(19) 729163
(2) 409274	(8) 647328	(14) 290147	(20) 584726
(3) 283147	(9) 415370	(15) 376071	(21) 327104
(4) 502725	(10) 382165	(16) 589278	(22) 692715
(5) 837256	(11) 358796	(17) 486791	(23) 415386
(6) 475384	(12) 789543	(18) 537216	(24) 260837

EXERCISE II.

Multiply each example successively by 3 ten times.

(1) 492865	(7) 836295	(13) 539216	(19) 728736
(2) 372504	(8) 683079	(14) 847549	(20) 910458
(3) 724163	(9) 401718	(15) 257164	(21) 492170
(4) 382710	(10) 621845	(16) 382716	(22) 386247
(5) 410624	(11) 392749	(17) 493278	(23) 594806
(6) 534768	(12) 627284	(18) 582160	(24) 302705

EXERCISE III.

Find the continued product of :—

(1) $8769 \times 23 \times 32 \times 22$	(7) $8449 \times 222 \times 32 \times 31$
(2) $9348 \times 32 \times 21 \times 33$	(8) $7358 \times 333 \times 23 \times 23$
(3) $7583 \times 23 \times 31 \times 13$	(9) $6645 \times 232 \times 33 \times 22$
(4) $5946 \times 33 \times 23 \times 22$	(10) $9357 \times 323 \times 22 \times 32$
(5) $8359 \times 22 \times 21 \times 33$	(11) $4695 \times 332 \times 23 \times 32$
(6) $6473 \times 33 \times 12 \times 31$	(12) $6859 \times 233 \times 22 \times 33$

EXERCISE IV.

Find the continued product of :—

(1) $6493 \times 333 \times 32 \times 30$	(9) $4726 \times 330 \times 22 \times 32$
(2) $8526 \times 302 \times 23 \times 20$	(10) $8594 \times 220 \times 21 \times 31$
(3) $5947 \times 203 \times 33 \times 13$	(11) $9625 \times 303 \times 20 \times 32$
(4) $6725 \times 313 \times 12 \times 21$	(12) $7592 \times 113 \times 13 \times 30$
(5) $8269 \times 212 \times 21 \times 31$	(13) $8276 \times 311 \times 22 \times 33$
(6) $7548 \times 122 \times 32 \times 23$	(14) $7958 \times 133 \times 20 \times 31$
(7) $6275 \times 331 \times 30 \times 20$	(15) $5872 \times 233 \times 32 \times 20$
(8) $8596 \times 323 \times 21 \times 22$	(16) $4295 \times 332 \times 20 \times 30$

EXERCISE V.

Multiply each example successively by 4 ten times.

(1) 738579	(7) 837259	(13) 593746	(19) 593728
(2) 694225	(8) 583726	(14) 427583	(20) 439275
(3) 385784	(9) 495693	(15) 639472	(21) 627386
(4) 964837	(10) 872977	(16) 385866	(22) 795927
(5) 385958	(11) 459768	(17) 776479	(23) 583949
(6) 496367	(12) 372758	(18) 588799	(24) 669988

EXERCISE VI.

Find the continued product of :—

(1) $9374 \times 334 \times 34 \times 24$	(7) $4836 \times 443 \times 43 \times 40$
(2) $8629 \times 344 \times 44 \times 14$	(8) $5972 \times 442 \times 42 \times 30$
(3) $5837 \times 444 \times 43 \times 42$	(9) $2858 \times 404 \times 20 \times 40$
(4) $2795 \times 434 \times 42 \times 40$	(10) $6887 \times 441 \times 41 \times 20$
(5) $8469 \times 424 \times 24 \times 34$	(11) $4466 \times 144 \times 14 \times 40$
(6) $3344 \times 414 \times 40 \times 43$	(12) $8789 \times 444 \times 34 \times 43$

EXERCISE VII.

Multiply each example successively ten times by 5, 6, 7, 8, 9.

(1) 438296	(7) 718936	(13) 837295	(19) 483869
(2) 792947	(8) 479652	(14) 628477	(20) 937284
(3) 388776	(9) 875609	(15) 279388	(21) 796277
(4) 554488	(10) 351726	(16) 496277	(22) 493962
(5) 786857	(11) 847257	(17) 872967	(23) 849587
(6) 438579	(12) 976285	(18) 483876	(24) 382276

EXERCISE VIII.

Find the continued product of :—

(1) $7325 \times 555 \times 54 \times 53$	(9) $3827 \times 768 \times 56 \times 70$
(2) $6453 \times 666 \times 56 \times 65$	(10) $4938 \times 879 \times 67 \times 60$
(3) $2798 \times 777 \times 76 + 75$	(11) $6459 \times 797 \times 77 \times 50$
(4) $4837 \times 888 \times 87 \times 86$	(12) $4338 \times 685 \times 87 \times 90$
(5) $5926 \times 999 \times 98 \times 97$	(13) $6557 \times 567 \times 89 \times 40$
(6) $3874 \times 565 \times 56 \times 57$	(14) $7394 \times 678 \times 88 \times 30$
(7) $6253 \times 665 \times 58 \times 59$	(15) $8762 \times 789 \times 89 \times 20$
(8) $4959 \times 776 \times 67 \times 78$	(16) $9395 \times 978 \times 99 \times 80$

EXERCISE IX.

Prove by using factors :

(1) 73928652×16
(2) 95243754×15
(3) 83729586×25
(4) 72958437×30
(5) 59247326×42
(6) 38172904×56
(7) 62954285×45
(8) 47293764×36
(9) 91285374×49
(10) 32941725×35
(11) 54687325×21
(12) 46297538×28
(13) 93426574×27
(14) 84263295×40
(15) 39337226×24
(16) 82749376×54
(17) 62839517×63
(18) 41928463×72
(19) 39276847×81
(20) 72931625×64
(21) 39258675×18
(22) 92371468×14
(23) 58312769×32
(24) 73294837×44
(25) 39217506×20
(26) 51822779×48
(27) 72915073×50
(28) 39581072×66
(29) 58392754×70
(30) 92134457×99

EXERCISE X.

Find the squares of the following numbers :

432	342	244	544	624	777	888
422	344	234	534	634	727	878
414	334	224	524	644	737	889
423	332	214	514	654	747	868
442	341	233	504	664	757	858
434	324	223	555	666	767	848
443	343	222	554	656	773	838
441	341	243	553	646	774	828
444	324	242	552	636	775	818
440	323	241	545	626	776	808

EXERCISE XI.

Find the cubes of the following numbers:

455	555	666	707	808	909	998
465	556	656	717	818	919	997
454	566	646	727	828	929	996
464	546	636	737	838	939	995
456	536	626	747	848	949	994
466	516	616	757	858	959	993
452	565	616	767	868	969	992
463	564	606	777	878	979	991
453	562	655	774	888	989	990
446	561	644	775	887	999	988

EXERCISE XII

(1) Find the cost of 165 yards of cloth at 25 cents a yard.

(2) What will 675 acres of land cost at 45 dollars an acre?

(3) Find the cost of laying 496 yards of sidewalk at 35 cents a yard.

(4) What is the railway fare for travelling a distance of 333 miles at 3 cents a mile?

(5) Find the total cost of 15 lbs. of tea at 75 cents a pound, 18 lbs. of sugar at 9 cents a pound, and 35 lbs. of rice at 6 cents a pound.

(6) There are 5280 feet in a mile, and 12 inches in a foot: how many inches in a mile?

(7) There are 60 seconds in a minute, and 60 minutes in an hour: how many seconds in an hour?

(8) Find the cost of 420 bushels of oats at 35 cents a bushel.

(9) Find the cost of 23 pieces of cloth, each containing 45 yards, at 30 cents a yard.

(10) Find the product of 703500 and 6500.

(11) Find the value of $80+72+5-8+35-65+100$.

(12) Multiply the product of 403 and 395 by their difference.

(13) Find the cost of 356 cords of wood at \$3.75 a cord.

(14) For how much must I sell 28 barrels of apples which cost \$2.50 a barrel so as to gain 14 dollars?

(15) Find the cost of 9 firkins of butter, each weighing 56 pound, at 14 cents a pound.

EXERCISE XIII.

(1) Write in Roman Notation 496, 975 and 1887.

(2) Find the value of $35+8-9+4-6-45+32$.

(3) If a barrel of flour cost 5 dollars, how many dollars will pay for 48 barrels?

(4) Multiply seventy-two thousand four hundred and eighty-three by 704.

(5) Find the difference between the sum of 978 and 769 and the product of 76 and 53.

(6) Find the value of 6 piles of wood, each containing 32 cords at $4.50 a cord.

(7) There are 160 square rods in an acre: how many square rods in 175 acres?

(8) Find the product of the nine digits.

(9) If 75 men can do a piece of work in 45 days, how many men will it take to do it in one day?

(10) Find that number of which 7, 8, 4, 6, 5 and 9 are the factors

(11) If a carriage wheel turn round 327 times in going one mile, how many times will it turn in going 39 miles?

(12) Two men start together from the same place and travel in the same direction, one at the rate of 35 miles a day and the other 42 miles a day: how far will they be apart at the end of 12 days?

(13) Find the cost of 672 pounds of pork at 6 cents a pound.

(14) Find the value of $786+978+47-56+847+396+35-40+875-974-376$.

EXERCISE I.

(1) 84206484 ÷ 2	(1) 30693096 ÷ 3	(1) 40804884 ÷ 4
(2) 42806842 ÷ 2	(2) 69030693 ÷ 3	(2) 88441212 ÷ 4
(3) 26844684 ÷ 2	(3) 93603963 ÷ 3	(3) 32396248 ÷ 4
(4) 48646688 ÷ 2	(4) 42151218 ÷ 3	(4) 41236408 ÷ 4
(5) 68486846 ÷ 2	(5) 27423954 ÷ 3	(5) 92725648 ÷ 4
(6) 46844782 ÷ 2	(6) 84753469 ÷ 3	(6) 76946768 ÷ 4
(7) 62064324 ÷ 2	(7) 75843876 ÷ 3	(7) 64890568 ÷ 4
(8) 54341258 ÷ 2	(8) 51364518 ÷ 3	(8) 32162836 ÷ 4
(9) 76385498 ÷ 2	(9) 92401827 ÷ 3	(9) 16321844 ÷ 4
(10) 78937674 ÷ 2	(10) 20781939 ÷ 3	(10) 25602544 ÷ 4

EXERCISE II.

Divide successively by 2, 3, and 4 till the quotient is less than the divisor.

(1) 2370453846	(11) 5823726425	(21) 5837062484
(2) 4754386274	(12) 6025372564	(22) 8321625842
(3) 6240837294	(13) 2543562792	(23) 7259308468
(4) 8624054736	(14) 8627503164	(24) 5174326456
(5) 5837246948	(15) 9383726426	(25) 6294897228
(6) 4320725638	(16) 4583672054	(26) 4927160554
(7) 5821072644	(17) 7212288662	(27) 9106248376
(8) 3827958348	(18) 8327156274	(28) 2728683844
(9) 2742936858	(19) 9120715638	(29) 9127304762
(10) 4829171442	(20) 4628047588	(30) 4273884764

EXERCISE III.

(1) 73924675 ÷ 5	(11) 93728646 ÷ 6	(21) 10218313 ÷ 7
(2) 38276595 ÷ 5	(12) 36087654 ÷ 6	(22) 11239424 ÷ 7
(3) 71588665 ÷ 5	(13) 54374046 ÷ 6	(23) 12326391 ÷ 7
(4) 39276855 ÷ 5	(14) 83729688 ÷ 6	(24) 13481272 ÷ 7
(5) 40920995 ÷ 5	(15) 92073846 ÷ 6	(25) 14706125 ÷ 7
(6) 37766885 ÷ 5	(16) 72934854 ÷ 6	(26) 16003003 ÷ 7
(7) 49927435 ÷ 5	(17) 38594412 ÷ 6	(27) 79261000 ÷ 7
(8) 62793945 ÷ 5	(18) 94863054 ÷ 6	(28) 78365427 ÷ 7
(9) 58354765 ÷ 6	(19) 47376618 ÷ 6	(29) 77539536 ÷ 7
(10) 27208315 ÷ 5	(20) 13260906 ÷ 6	(30) 76751269 ÷ 7

EXERCISE VI.

(1) 82097152÷8
(2) 82515456÷8
(3) 82985984÷8
(4) 83511808÷8
(5) 84096000÷8
(6) 84741632÷8
(7) 85451776÷8
(8) 86229504÷8
(9) 87077888÷8
(10) 88998912÷8
(11) 10077696÷8
(12) 15252992÷8
(13) 93581577÷9
(14) 94251528÷9
(15) 95000211÷9
(16) 95832000÷9
(17) 96751269÷9
(18) 97762392÷9
(19) 98869743÷9
(20) 10077696÷9
(21) 11390625÷9
(22) 12812904÷9
(23) 14348907÷9
(24) 16003008÷9

EXERCISE V.

Divide successively by 5, 6, 7, 8, and 9 till the quotient is less than the divisor.

(1) 3928164864
(2) 4937268196
(3) 6544322268
(4) 5543587642
(5) 3426079548
(6) 6677583442
(7) 6241897270
(8) 4429003648
(9) 3495404805
(10) 6214607813
(11) 9536133997
(12) 1523189428
(13) 2992525134
(14) 9382935978
(15) 9573788854
(16) 7564892336
(17) 7755577445
(18) 5746346373
(19) 5937634669
(20) 3928463922
(21) 7669897978
(22) 8090762756
(23) 5966269966
(24) 8755859493
(25) 7746689493
(26) 3864389724
(27) 6676464864
(28) 9849672586
(29) 2877932676
(30) 6726889562

EXERCISE VI.

Factor the divisor.

(1) 110592÷48
(2) 117649÷49
(3) 157464÷54
(4) 175616÷56
(5) 250047÷63
(6) 262144÷64
(7) 287496÷66
(8) 373248÷72
(9) 456533÷77
(10) 512000÷80
(11) 531441÷81
(12) 592704÷84
(13) 2985984÷24
(14) 1404928÷16
(15) 2000376÷18
(16) 5359375÷25
(17) 6028568÷27
(18) 5832000÷30
(19) 2097152÷32
(20) 4741632÷42
(21) 11390625÷45
(22) 7077888÷48
(23) 11239424÷56
(24) 10077696÷54
(25) 6392758÷48
(26) 8390276÷56
(27) 3927054÷63
(28) 4827059÷54
(29) 3891063÷72
(30) 9278588÷81
(31) 4927684÷35
(32) 8372565÷32
(33) 6284752÷42
(34) 9388976÷49
(35) 4662074÷36
(36) 8372542÷28

EXERCISE I.

(1) A school has 196 more boys than girls; there are 672 girls: how many pupils altogether?

(2) I bought five pounds of tea at 65 cents a pound and gave a ten dollar bill in payment: how much change should I receive?

(3) Find the sum of three numbers; the first is 97240; the second is 8596 more than the first, and the third is 1000 more than the second.

(4) From the largest number that can be expressed by 8, 3 and 5 substract 726.

(5) The addends are 763, 987, 456, 835, 796, 654: What is the sum?

(6) How many days from 8th of June to 17th October?

(7) Find the total cost of 56 pounds of butter at 23 cents a pound, 103 pounds of cheese at 17 cents a pound, and 25 pounds of coffee at 24 cents a pound.

(8) Find the difference between the square of 756 and the cube of 429.

(9) A clerk's salary is 65 dollars a month; if he spend 43 dollars a month: how much will he save in a year?

(10) Find the value of 276 bushels of wheat at $1.16 a bushel.

(11) How many pounds of tea at 60 cents a pound should I get in exchange for 45 dozen of eggs at 20 cents a doz.?

(12) A man left 2500 dollars to each of his two sons and the rest to his wife: the estate was valued at 8000 dollars: how much did his wife get?

EXERCISE II.

(1) How many times has 72 to be added to itself to make 864?

(2) If the product of 48 and 96 be divided by 4, and 200 subtracted from the quotient: What will the remainder be?

(3) How many dozen of eggs at 9 cents a dozen are worth 27 pounds of butter at 20 cents a pound?

(4) If Frank adds 8 figures a second: how many will he add in ten minutes?

(5) Find the sum, difference, product and quotient of 72 and 648.

(6) A drover bought 876 lambs at 3 dollars each, and sold them at the rate of 4 for 14 dollars: how much did he gain?

(7) A house and lot cost 9000 dollars; the house cost twice as much as the lot: how much did the lot cost?

(8) Divide 1100 dollars between two men giving one 50 dollars more than the other.

(9) The sum of 124 and 421 is how much less than their product?

(10) I bought 42 sheep at 3 dollars each and sold them at a gain of 63 dollars: how much did I get for each sheep?

(11) Find the total cost of 15 pounds of tea at 60 cents a pound, 35 pounds of raisins at 14 cents a pound, and 32 pounds of currents at 9 cents a pound.

(12) A man earns 80 dollars a month and spends 560 dollars a year: how long will it take him to save 1200 dollars?

EXERCISE III.

(1) How often does 9 times the sum of 469 and 477 contain their difference?

(2) Write in words 908760, 7054397, and 1010010.

(3) By what number must the product of 76 and 84 be increased to make 119750?

(4) A drover bought 232 lambs at $2.75 each, he sold 195 of them at 3 dollars each, and the rest at 4 dollars each: how much did he gain?

(5) By selling my horse for 125 dollars I lost 35 dollars; what would I have gained had I sold him for 180 dollars?

(6) A boy bought 6 dozen lead pencils at 14 cents a dozen, and sold them at the rate of three pencils for 5 cents: how much did he gain?

(7) The quotient is 120910, the divisor 8 and the remainder 7: What is the dividend?

(8) Divide the product of 56, 72 and 48 by 36 using factors.

(9) If the divisor were half what it is the quotient would be 100: what is the quotient?

(10) At 4 dollars a ton, how many tons of coal can be bought for 1446 dollars?

(11) A merchant mixed 65 pounds of tea worth 45 cents a pound with 60 pounds worth 30 cents a pound and sold the whole for 60 dollars: how much did he gain?

EXERCISE IV.

(1) A woman bought 108 eggs at 12 cents a dozen and 20 pounds of butter at 30 cents a pound: how much change should she get from a ten dollar bill?

(2) How much is 10010010 greater than the product of 99 and 78?

(3) Write 763, 847, 965, 879, 427, and 1845 in Roman Notation.

(4) A boy paid 40 cents for two dozen lead pencils, and sold them at the rate of 2 for 5 cents: how much did he gain?

(5) Multiply the sum of 479 and 657 by the difference between 684 and 431.

(6) What number divided by 6 will give the same quotient as 3653832 divided by 7?

(7) If 4 pounds of butter cost as much as 6 dozen of eggs, and one dozen eggs be worth 12 cents: find the price of the butter per pound.

(8) How many times can the difference between 795848 and 213129 be successively divided by 4 till the quotient is less than the divisor?

(9) Two men start together from the same place and travel in opposite directions one at the rate of 3 miles an hour, and the other at the rate of 4 miles an hour: how far will they be apart in 120 hours allowing 24 hours for rest?

(10) Find the total cost of 20 pounds of butter at 16 cents a pound, 25 pounds of currants at 4 cents a pound, and 15 pounds of cheese at 12 cents a pound.

EXERCISE V.

(1) There are 60 seconds in a minute and 1440 minutes in a day : how many seconds in 7 days ?

(2) Divide 76284748 by 32 using factors.

(3) Bought 52 dozen eggs at 11 cents a dozen and sold them at the rate of 4 dozen for 50 cents : find the gain.

(4) Allowing 365 days in a year and 24 hours in a day : how many hours has a boy lived who is just ten years old ?

(5) How many barrels of apples at 3 dollars a barrel can be bought for 138 dollars ?

(6) Find the difference between $64+37+28+96+24\times6+56-72$ and $32+65+8\times32-100$.

(7) Add together the sum, product, quotient and difference of 12 and 108.

(8) Divide 687904 dollars equally among 7 persons.

(9) Find the continued product of 27, 34, 46 and 50.

(10) The minuend is 723841, the difference is 432756 : what is 47 times the subtrahend ?

(11) The divisor is 9, the quotient is 13847, and the remainder the largest number possible : what is the dividend ?

(12) A farmer exchanged 60 bags of potatoes at 40 cents a bag for 16 barrels of apples : how much were the apples worth a barrel ?

EXERCISE VI.

(1) Divide 11100 dollars between two men giving one 150 dollars more than the other.

(2) A grocer mixes 3 pounds of tea worth 60 cents a pound with one pound worth 80 cents: how much is the mixture worth a pound?

(3) Find the total cost of 4 dozen eggs at 12 cents a dozen, 8 pounds of butter at 20 cents a pound, and 5 pounds of raisins at 9 cents a pound.

(4) John has 36 marbles, Willie has 9 more than John, and Andrew has as many as the other two: how many have they all?

(5) The square of a certain number added to 4 is 85: find the number.

(6) From ten thousand five hundred and four, take nine hundred and twenty-eight.

(7) Find the value of $487+596-384+248-672+987+24\times 32-700+36\times 40-200$.

(8) Find the product of the sum and difference of 96 and 124.

(9) Express 386, 795, 978, 1420 and 1879 in Roman Notation.

(10) A farmer sold 240 bushels of wheat, 387 bushels of peas and 486 bushels of oats; he got 95 cents a bushel for the wheat, 84 cents for the peas, and 35 cents for the oats: how much money did he receive?